Clean Diesel Technologies

Purifier™ e4 System

The Clean Diesel Technologies Purifier™ e4 System combines a lightly catalysed Level 3 diesel particulate filter with the patented Platinum Plus® fuel borne catalyst (FBC) to provide maximum performance of in-service reliability, particulate emission reduction and fuel economy.

The Purifier e4 system provides an efficient filtration of particulate matter of up to 99% while causing no increase in nitrogen dioxide (NO2) emissions. This makes the system especially well suited for ozone non-attainment areas where increases in NO_2 emissions are undesirable or in mining and underground activities where increases in NO_2 are prohibited.

Highlights

- Maximum performance up to 99% PM reduction, no increase in NO2/NO ratio
- Greater temperature range than conventional full wall filter
- Low regeneration temperature
- Improved in-service reliability and durability
- Does not compromise ambient air quality, excellent solution for NO2-sensitive non-attainment areas or low

Verification Include

- VERT
- Preliminary
  CARB verification (Off-road Showcase)
- Transport for London Low Emission Zone
- CARB and EPA Verification underway

Purifier e4 System Components

The Purifier e4 System consists of filter hardware, on-board doser and a Electronic Control Unit(ECU).

1. Filter Hardware

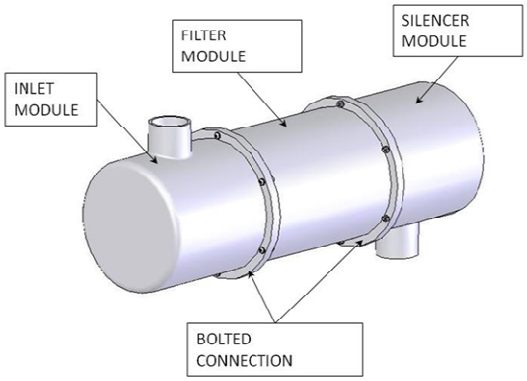
Inlet Module: Inlet unit designed to distribute the exhaust gas evenly across the entire Diesel Particulate Filter surface at minimal back pressure.

Diesel Particulate Filter Module: Lightly catalyzed silicon carbide substrate designed to enhance regeneration characteristics without increasing NO_2 emissions.

Silencer Module: Outlet unit designed to reduce noise while causing minimum back pressure.

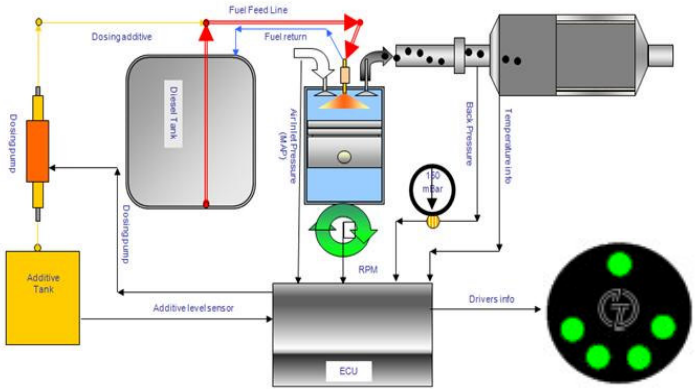
Both Entry Can and Silencer modules have the option of side or end inlet/outlet locations.

Systems can be easily customized to meet unique installation requiments



On Board Dosing / Electronic Control Unit (ECU)

The on-board dosing/ECU provides accurate injection of the Platinum Plus fuel-borne catalyst for efficient regeneration, monitors and data logs critical performance parameters and provides system diagnostics feedback to operator via dashboard indicator. The doser is a fully programmable system that can be easily set up to meet varying application requirements.



The on-board dosing/ECU includes:

- Programmable Electronic Control Module
- ECU Programming and Interface Software.
- Fuel Additive Tank (1 gallon)
- Fuel Additive Pump
- Operator Condition and Warning Indicator
- Back Pressure and Temperature Sensors

Product Performance and Benefits

- Continuous oxidation of soot in the DPF
- Balance point without EGR 300-325°C
- Balance point with EGR 350-370°C
- Short burn out time – 5 minutes to regenerate a DPF
- Low exotherms during regeneration preventing damage to filter substrate

Typical Regeneration Characteristics

Low regeneration temperatures

Minimum temperature requirements for passive operations

- 350°C or higher for a minimum of 3 continuous minutes, or
- Average temperature of at least 200°C for one daily operation period (DOP):
  - 250°C for 15% of DOP or greater
  - 300°C for 5% of DOP or greater

Emissions Reduction

	Engine Out	After Purifier
HC	15 to 40%	30 to 100%
CO	10 to 20%	20 to 40%
PM	10 to 25%	95%
Fuel Economy		5 to 8% Improvement

Imposed Back Pressure

- Maximum back pressure at full power: 60" H_2O (4.35" Hg).
- Imposed back pressure is less for other conditions

Back pressures for regularly maintained filters that are subject to continuous regeneration.

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the cleantech emissions reduction company

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